UNITED STATES PATENT AND TRADEMARK OFFICE

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10/083,121	02/27/2002	Hiroshi Tsuda	826.1792	3398

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *15 September 2007*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-3,6-9,11-26,28-40,44 and 46-54* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3, 6-9, 11-26, 28-40, 44 and 46-54* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

This is response to amendment filed 09/25/07.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-3, 6-9, 11-26, 31-32, 44, 46-51 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-3, 6-9, 11-25, 44 and 46-49 recite a method where there is no useful, concrete and tangible result. The claimed invention lacks a final result of calculating a popularity transition degree, which has practical application in the real world. A practical application is required to be useful, concrete and tangible. They are missing the steps or processes producing any useful result to the invention, of having a utility to convey the final result achieved by the claimed invention, that is, they are not producing a result tied to the real/physical world or this application is not a practical application.

Claims 26, 31-32, 50 and 51 recite a computer-readable storage medium stores program (software program) stores on a medium such as CD-ROM, DVD

without being executed by a computer system containing all physical objects that

must be well-defined in the specification. Thus, CD-ROM/DVD or a computer

program product here is non-functional descriptive material, a non-statutory

subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject·matter as a whole would have been obvious at the time the invention was made to a
person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived
by the manner in which the invention was made.

Claims 1-3, 6-9, 26, 28-30, 33, 34, 38, 39, 44 and 46-54 rejected under

35 U.S.C. 103(a) as being unpatentable over "A Connectivity Analysis Approach

to Increasing Precision in Retrieval from Hyperlinked Documents", Cathal Gurrin

et al., publication 1999 (hereafter Cathal) in view of "The Content and Access

Dynamics of a Busy web site: findings and implications", Venkata Padmanabhan

et al., copyright 2000 ACM.

Regarding claims 1, 26 and 44, Cathal discloses: a popularity degree

calculation method and a computer-readable storage medium that stores a

program, for calculating a popularity degree indicating the height of a popularity

of a document in a network via an apparatus connected with the network,

comprising:

extracting the document updated or collected during a first time period

(i.e., extract all pages from the source..., see section 3,1, lines 3-13, Cathal);

calculating the popularity degree for one of the extracted documents

during the first time period (i.e., judge the popularity of a particular page to WWW

page authors and consequently we can generate a popularity rank for the page,

see section 2.1 Analysis of Link Structure, third paragraph, Cathal);

extracting a popularity degree from the calculated popularity degree during

a second time period (i.e., accepting queries and returning sets of highly-scored

documents for additional processing... this processing was one in stages at nigh

and at weekends as the PC was being use during the day to develop the search

software, section 3.1, 2nd paragraph, Cathal);

However, Cathal didn't disclose: calculating a popularity transition degree

indicating both a direction and a degree of transition of the popularity degree for

each of the extracted documents based on the popularity degree during the first

time period and the second time period, to thereby obtain a difference indicating

how the popularity degree of each of the documents changes in a time series

order. On the other hand, Padmanabhan discloses: calculating a popularity

transition degree indicating both a direction and a degree of transition of the

popularity degree for each of the extracted documents based on the popularity

degree during the first time period and the second time period, to thereby obtain

a difference indicating how the popularity degree of each of the documents

changes in a time series order (i.e., we then compute the overlap in the most

popular pages selected in one day to those selected in the next day, page 117,

section 5.2.1, lines 4-6 and i.e., how much does the popularity of web pages

change with time? That is, do popular web pages on one day remain popular on

the subsequent day? Page 117, section 5.2, lines 3-5, Padmanabhan). Thus, at

the time invention was made, it would have been obvious to a person of ordinary

skill in the art to include the calculating a popularity transition degree based on

the popularity degree during the first time period and the second time period in

the system of Cathal as taught by Padmanabhan. The motivation being to

enable determining the popularity of web pages change with time therefore

establish the web page popularity ranking.

Regarding claim 2, all the limitations of this claim have been noted in the

rejection of claim 1 above. In addition, Cathal/Padmanabhan discloses: wherein

the popularity degree is calculated based on both a link relation of each of the

extracted documents and document location information indicating a location in

the network of each of the documents (i.e., ranking by inlinks based on a number

of popularity ranking formulae, see section 4.3, Cathal).

Regarding claim 3, all the limitations of this claim have been noted in the

rejection of claim 2 above. In addition Cathal/Padmanabhan discloses: wherein

the popularity degree is calculated based on features of a character string (query

term) describing the document location information (i.e., URL was than used to

query the AltaVista search engine using: "link:URL" query that returns the

number of and actual inlinks into the document in question, then ranked by the

popularity of the main page within each domain, see section 4.3, last paragraph,

Cathal).

Regarding claims 6, 28 and 46, all the limitations of these claims have been noted in the rejection of claims 1, 26 and 44 above. In addition, Cathal/Padmanabhan discloses: further comprising: calculating a regression equation against a time of the popularity degree calculated during the second time period (i.e., compute the overlap in the most popular pages selected on one day to those selected in the next day, section 5.2.1, Padmanabhan), wherein the popularity transition degree is calculated according to the regression equation (i.e., Variation 4

```
Pn = ( 2 * ΣinLinksn (0..50) ) + ( 1 * ΣoutLinksn (0..20) )
+ ( discWt(200..0) / 2 )
```

This formula was called *RerankAdv* and required one additional modification before it was finalized. The type of links used in calculation of Pn for each document was also taken into account, see section 4.3, Cathal).

Regarding claims 7, 29, 47 and 52, all the limitations of these claims have been noted in the rejection of claims 6, 28 and 46 above. In addition, Cathal/Padmanabhan discloses: wherein the popularity transition degree is calculated based on a regression coefficient of the regression equation (i.e., Variation 4

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Pn = ( 2 * ΣinLinksn (0..50) ) + ( 1 * ΣoutLinksn (0..20) )
+ ( discWt(200..0) / 2 )
```

This formula was called *RerankAdv* and required one additional modification before it was finalized. The type of links used in calculation of Pn for each document was also taken into account, see section 4.3, Cathal).

Regarding claims 50 and 51, all the limitations of these claims have been noted in the rejection of claims 1 and 6. It is therefore rejected as set forth above.

Regarding claims 8, 30, 48 and 53, all the limitations of these claims have been noted in the rejection of claims 7, 29, 47 and 51 above. In addition, Cathal/Padmanabhan discloses: further comprising determining transition tendency against the time of the popularity degree, based on an intercept of the regression equation (i.e., Variation 4

$$Pn = (2 * \Sigma inLinksn (0..50)) + (1 * \Sigma outLinksn (0..20)) + (discWt(200..0) / 2)$$

This formula was called *RerankAdv* and required one additional modification before it was finalized. The type of links used in calculation of Pn for each document was also taken into account, see section 4.3, Cathal)

Regarding claims 9 and 49, all the limitations of these claims have been noted in the rejection of claims 6 and 44 above. In addition, Cathal/Padmanabhan discloses: further comprising: determining an order of each document in the extracted documents, based on the popularity degree calculated during the second time period (i.e., examined the correlation between

document age and popularity and the document ID sorted in decreasing order of

popularity, see section 5.1, Padmanabhan).

Regarding claim 33, all the limitations of this claim have been noted in the

rejection of claim 1. It is therefore rejected as set forth above. In addition,

Cathal/Padmanabhan discloses: collecting documents from the network (i.e.,

extracting information from hyperlinks on the WWW... see section 2.1, paragraph

3, Cathal); retrieving the document meeting retrieval conditions from the collected

documents, based on the retrieval conditions (i.e., utilizing functional links can

give us a means to judge the popularity of a particular page to www page authors

and consequently we can generate a popularity rank for the page... see section

2.1, paragraph 3, Cathal); ranking the retrieved documents, based on the

popularity degree (i.e., generate a popularity rank for the page, see section 2.1,

paragraph 3, Cathal); and outputting information about the retrieved documents,

based on the ranking result (i.e., extracting information from hyperlinks on the

WWW... see section 2.1, paragraph 3, Cathal).

Regarding claim 34, all the limitations of this claim have been noted in the

rejection of claim 33 above. In addition, Cathal/Padmanabhan discloses: adding

information about the popularity transition degree to information about the

retrieved documents (i.e., the more popular a document is, the more inlinks that

document will have on the www, see section 4.3, lines 1-13, Cathal).

Regarding claim 38, all the limitations of this claim have been noted in the

rejection of claim 33 above. In addition, Cathal/Padmanabhan discloses:

receiving from a user registration of both document location information

indicating location in the network of a specific document and a value (i.e.,

document ID, URL and title, see section 3.1, Cathal); notifying the user of the fact

that a popularity degree has reached the value, when the popularity degree for

the document specified by the document location information has reached the

value (i.e., discovery would only list the top 200 documents in response to a

query, we found no way around this limitation and consequently our results only

ever contained a maximum of 200 documents, even when more were deemed

relevant, we avoided expanding the set of relevant documents using the

neighbourhood of these documents as in due to the fact that our result set

already contained to many irrelevant documents, see section 3.1, lines 31-38,

Cathal).

   . Regarding claim 39, all the limitations of these claims have been noted in

the rejection of claims 1, 26 and 33, In addition, Cathal/Padmanabhan discloses:

retrieving the document meeting retrieval conditions from the collected

documents based on the retrieval conditions ; ranking the retrieved documents,

based on the popularity degree; and outputting information about the retrieved

documents, based on the ranking result (i.e., using functional links from within

the supplied connectivity data provides the best results of all of connectivity

analysis approaches outlined in this document... therefore only a limited number

of document would be re-ranking from any one query, see section 5, result,

Cathal).

Regarding claim 54, all the limitations of this claim have been noted in the rejection of claims 33 and 38. It is therefore rejected as set forth above.

Claims 11-25, 31-32, 35-37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over "A Connectivity Analysis Approach to Increasing Precision in Retrieval from Hyperlinked Documents", Cathal Gurrin et al., publication 1999 (hereafter Cathal) in view of "image retrieval by hypertext links", Sanderson M. et al. copyright 1997 ACM (hereafter Sanderson).

Regarding claims 15 and 31, Cathal discloses: a document relation judgment method a computer-readable storage medium that stores a program for judging a relation between documents in a network via, comprising: extracting a link relation from a first document (extracting information from hyperlinks on the www, see section 2.1, lines 23-26, Cathal); extracting a predetermined character string which links a second document in the first document from (inlinks from a number of other documents relating to a similar topic, section 2.1, lines 31-32, Cathal). However, Cathal didn't discloses: judging whether a second document linked to by the first document is a non-text document related to contents of the first document, based on whether the second document is used a prescribed number of times or more in the first document. On the other hand, Sanderson discloses: judging whether a second document linked to by the first document is a non-text document related to contents of the first document (i.e., web collection is to identify the documents in the collection and their links, a web crawler was

used to scan a set of image collections and store for each image, the text of page linked to that image via one or two step links, see page 297, 2nd column, section 2.2, lines 31-35, Sanderson), based on whether the second document is used a prescribed number of times or more in the first document (i.e., the text is broken up into three sections: image caption, neighboring image captions and one step link text, see page 298, section 2.2.1 lines 17-26, Sanderson). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include the document is a non-text document related to contents of the first document, based on the link relation in the system of Cathal as taught by Sanderson. The motivation being enable to gather relevance judgments, hypermedia links are used to calculate an approximation to the content of a non-textual node by using clustering techniques.

Regarding claim 11, all the limitations of this claim have been noted in the rejection of claim 15 above. In addition, Cathal/Sanderson discloses: further comprising: extracting the predetermined character string located in a vicinity of a part which the first document is linking to the second document, from the first document (i.e., a decision was made to split the text of a page into independent sections according to its position in respect to the URL link to an image, page 298, section 2.2.1, 2nd paragraph), wherein it is judged whether the second document is the non-text document related to the contents of the first document, based on the character string (i.e., web collection is to identify the documents in the collection and their links, a web crawler was used to scan a set of image

collections and store for each image, the text of page linked to that image via one or two step links, see page 297, 2nd column, section 2.2, lines 31-35, Sanderson).

Regarding claim 12, all the limitations of this claim have been noted in the rejection of claim 11 above. In addition, Cathal/Sanderson discloses: wherein when the predetermined character string includes a specific character string, it is determined that the second document is the non-text document related to the contents of the first document (i.e., images are referenced in a page via a URL link and are displayed in one of two ways either as inline images displayed in the page or via a link to an image file, page 298, section 2.2.1, 1st paragraph, Sanderson).

Regarding claim 13, all the limitations of this claim have been noted in the rejection of claim 15 above. In addition, Cathal/Sanderson discloses: wherein it is judged whether the second document is the non-text document related to the contents of the first document, based on an extension of a file name of the second document (i.e., images are referenced in a page via a URL link and are displayed in one of two ways either as inline images displayed in the page or via a link to an image file, page 298, section 2.2.1, 1st paragraph, Sanderson).

Regarding claim 14, all the limitations of this claim have been noted in the rejection of claim 13 above. In addition, Cathal/Sanderson discloses: wherein if the extension is not a specific extension, it is determined that the second

document is not the non-text document related to the contents of the first

document (i.e., images are referenced in a page via a URL link and are displayed

in one of two ways either as inline images displayed in the page or via a link to

an image file, page 298, section 2.2.1, 1st paragraph, Sanderson).

Regarding claim 16, all the limitations of this claim have been noted in the

rejection of claim 15 above. In addition, Cathal/Sanderson discloses: wherein if

the second document is used the prescribed number of times or more in the first

document, it is determined that the second document is not the non-text

document related to the contents of the first document (i.e., images are

referenced in a page via a URL link and are displayed in one of two ways either

as inline images displayed in the page or via a link to an image file, page 298,

section 2.2.1, 1st paragraph, Sanderson).

Regarding claim 17, all the limitations of this claim have been noted in the

rejection of claim 15 above. In addition, Cathal/Sanderson discloses: wherein if

the second document is used less than the prescribed number of times in the first

document, it is determined that the second document is the non-text document

related to the contents of the first document (i.e., if links are to very similar nodes,

then the representations will more precisely describe the content of the cluster, if

the links are to loosely related nodes, then the cluster representative calculation

will yield a less accurate description of the non-textual node and then the

retrieval effectiveness will decrease..., see page 299, section 2.3, Sanderson).

Regarding claim 18, all the limitations of this claim have been noted in the rejection of claim 15 above. In addition, Cathal/Sanderson discloses: not registering the second document in a database as the non-text document related to the contents of the first document, if the first document includes a third document with a file name similar to a file name of the second document and if the file name of the second document is ranked lower than the file name of the third document in a dictionary order (i.e., images are referenced in a page via a URL link and are displayed in one of two ways: either as inline images displayed in the page or via a link to an image file, see page 298, section 2.2.1, 1st paragraph, Sanderson.

Regarding claim 19, all the limitations of this claim have been noted in the rejection of claim 10 above. In addition, Cathal/Sanderson discloses: further comprising judging, if there is a fourth document linked to by the second document, whether the second document is the non-text document related to the contents of the first document, based on both document location information about the first document indicating location in the network of the document and document location information about the second document (i.e., each of these non-textual nodes all the textual node that are linked to them, by means of one and two step links, page 297, section 2.2, Sanderson and section 2.2.1 describe the URL link such as location of the document, Sanderson).

Regarding claim 20, all the limitations of this claim have been noted in the rejection of claim 19 above. In addition, Cathal/Sanderson discloses: wherein it is judged whether the second document is the non-text document related to the contents of the first document, based on both the document location information about the first document and document location information about the fourth document (i.e., web browser and typically consists of formatted text, images, fill out forms, table, anchors to other parts of the same document and links to other HTML documents...images are referenced in a page via a URL link, see page 298, section 2.2.1, 1^{st} paragraph, Sanderson).

Regarding claim 21, all the limitations of this claim have been noted in the rejection of claim 15 above. In addition, Cathal/Sanderson discloses: wherein if a fifth document is linked to by the second document and if a server address or a domain in each of the document location information about the second document indicating location in the network of the document and document location information about the fifth document is different from a server address or a domain in document location information about the first document, it is determined that the second document is not the non-text document related to the contents of the first document (i.e., web browser and typically consists of formatted text, images, fill out forms, table, anchors to other parts of the same document and links to other HTML documents...images are referenced in a page via a URL link, see page 298, section 2.2.1, 1^{st} paragraph, Sanderson).

Regarding claim 22, all the limitations of these claims have been noted in the rejection of claim 1. In addition, Cathal/Sanderson discloses: extracting a tag that is contained in each of the extracted documents and designates user input (i.e., image caption defined as the text after the image's URL until the end of paragraph (i.e., indicated by <p> or <br> or until a link to another image is encountered, see page 298, section 2.2.1, lines 17-20. Sanderson) ; and judging the type of the service provided by each of the documents, based on the tag that designates user input (i.e., web browser and typically consists of formatted text, images, fill out forms, table, anchors to other parts of the same document and links to other HTML documents...images are referenced in a page via a URL link, see page 298, section 2.2.1, 1st paragraph, Sanderson)..

Regarding claim 32, all the limitations of these claims have been noted in the rejection of claim 31 and 22.

Regarding claim 23, all the limitations of this claim have been noted in the rejection of claim 22 above. In addition, Cathal/Sanderson discloses: further comprising: determining that the document provides no service, if the document includes no tag designating user input (i.e., indicated by <p> or <br> tags, page 298, section 2.2.1, lines 17-21, Sanderson).

Regarding claim 24, all the limitations of this claim have been noted in the rejection of claim 22 above. In addition, Cathal/Sanderson discloses: wherein the service type provided by the document is judged based on the description of a

button included in the document (i.e., images denoting that page is new or under

construction, images that are used as paragraph separator indicators of list of

elements, navigational buttons, user to help the user navigate to the next page...,

see page 298, section 2.2.2 and fig. 4, Sanderson).

Regarding claim 25, all the limitations of this claim have been noted in the

rejection of claim 22 above. In addition, Cathal/Sanderson discloses: wherein the

service type provided by the document is judged based on a user input area

included in the document (i.e., functional images are used to give structural and

navigational information to the reader, see page 298, section 2.2.2 and fig. 4,

Sanderson).

Regarding claim 35, all the limitations of this claim have been noted in the

rejection of claims 33 and 31. Therefore it is rejected as above.

Regarding claim 36, all the limitations of this claim have been noted in the

rejection of claim 35. In addition, Cathal/Sanderson discloses: further

comprising: embedding the information about the related non-text document into

the related non-text document (i.e., most of these sites have large portion of text

associated with the images..., page 300, section 3.1, lines 18-21, Sanderson).

Regarding claim 37, all the limitations of this claim have been noted in the

rejection of claims 33, 22 and 23. It is therefore rejected as set forth above.

Regarding claim 40, all the limitations of this claim have been noted in the

rejection of claims 1, 6, 15, 23 and 33. It is therefore rejected as set forth above.

In addition, Cathal/Sanderson discloses: a sorting unit hierarchically sorting the

collected documents for each area (i.e., in order to provide higher quality results

to a search by focusing on the immediate neighborhood of the document in the

www graph, to a depth of 1, hyperlink vector voting method which ranks a

document on the basis of the number of hyperlinks pointing into it..., see section

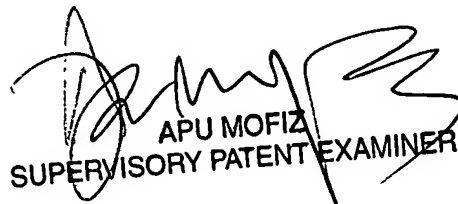2.2., last paragraph, lines 2-4, Cathal).

Contact Information

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Cindy Nguyen whose telephone number is

571-272-4025. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cindy Nguyen

APU MOFIZ
SUPERVISORY PATENT EXAMINER